

## Clinical Section

### The Prevention and Treatment of Deformities Arising in the Course of Infantile Paralysis

By

ANGUS A. MURRAY

M.D., Ch.M. (Man.), F.R.C.S. (C.)

The prevention and treatment of deformities arising in the course of infantile paralysis is a very wide subject. It is not expected that we should here attempt to discuss it in detail. These notes are a continuation of the subject onward from where the previous paper left off. Let us limit ourselves to a discussion of some of the general principles which should guide us in dealing with the problems which confront us at the present time, particularly in reference to the 1936 epidemic in this Province.

Anterior poliomyelitis is one of the greatest scourges that affects humanity. If one were to classify the patients found in a cripple children's hospital one would find that 30 to 40 per cent of the cases were residual infantile paralysis. The means for the prevention of the disease are limited. We have had epidemics in 1936, 1928, 1920 and 1917, and it is certain that we will have others in the years to come.

For purposes of description the course of infantile paralysis is divided into three stages. *First Stage:* The period beginning with the onset of the disease and lasting until muscular pain and tenderness have disappeared, two months or even longer. *Second Stage:* The convalescent stage, i.e., the period during which remedial treatment for the restoration of muscular disability is carried on. It lasts until the process of recovery has ceased, probably 2 to 3 years. *Third Stage:* The period from the time recovery has ceased, onwards for the remainder of the patient's life. This is the stage of residual paralysis. The line of demarkation between these different stages cannot be sharply drawn because they merge one into the other.

**The Acute Stage:** During this stage we should rest the patient, avoid meddlesome therapeutics, and prevent deformities. At this time we should not use lamp treatment, electricity or massage. We think that massage should not be given until long after the muscular pain and tenderness have disappeared. The blighting influence of hide-bound tradition has, I believe, tempted many of us to put too much faith in these procedures. "Electrical treatment we regard as of no value. Not only that, but it often leads to the neglect of more rational measures." During the three or four months subsequent to the onset of the disease, the treatment the patient most requires is rest and the prevention of deformities. Not

a single patient who has been under our care during this last epidemic has had any treatment other than good nursing, the prevention of deformities and rest during this period. One cannot emphasize too strongly the importance of rest. This point was stressed time and again by the late Sir Robert Jones and others well qualified to speak on this subject. Recently we have kept the patients who were under our care at rest for much longer periods than ever before, and have been extremely well pleased with the results. Rest does not mean that the patient must be always kept in one and the same position but rather the avoidance of exercise which would cause muscular fatigue. In many cases it is difficult to get the parents of children to realize that when the patient is resting anything worth while is being done. They want more action and often times will go where they can get it. It was ever thus.

#### Rest.

Anterior poliomyelitis is an affection of the whole nervous system. Therefore, the patient at first requires complete rest, both mental and physical. How are we to obtain this? (1) By putting the patient to bed having first fitted the bed up with boards between the spring and a firm mattress. Use light warm bed clothes, and keep the weight of the bed clothes off the toes. Put a board crosswise at the foot of the bed against which the patient can place his or her feet and so keep them at right angles to the legs. Keep the knees slightly flexed, the lumbar spine supported with a folded sheet and at least part of the time keep the patient's trunk straight on the bed so as to avoid the development of scoliosis. (2) Also see to it that the patient gets plenty of fresh air and sleep. The patient's position in bed must be changed frequently in order to prevent the weariness which comes from lying too long in one position. As soon as the pain begins to subside the joints should be gently moved and the range of movement increased as time goes on. In carrying out these movements, fatigue and undue stretching of muscles is to be avoided. I mention the matter of moving the joints because if left too long in the straight position they will eventually become so stiff that only a slight range of movement can be obtained.

#### Deformities.

Deformities can, and often do, develop when the patient is in bed. They develop because: (1) The patients are apt to lie too long in the most comfortable position and often that is with the joints in too much flexion or extension, i.e., not in the neutral position. (2) Because some groups of muscles are stronger than their opponents and so keep the joint flexed or extended over too long a period of time; the trunk may be drawn to one side producing a scoliosis, the head bent to one side, the arm kept close to the trunk, the

hip joint flexed, the knees flexed, and the ankle joint extended. All of the above mentioned deformities can be prevented. The prevention of deformities is much less spectacular work than the correction of them, but is much better for the patient. Deformities develop insidiously and often pass unnoticed by parents until the condition is well established and the golden opportunity for preventing them has passed by. This is well illustrated in cases of scoliosis.

The prevention of deformities will reduce to a minimum:—the suffering which the patient will have to endure; the number of cutting operations; the length and cost of hospitalization and shorten the total period of treatment.

### How Can Deformities Be Prevented?

We have already mentioned the procedure to be adopted during the early acute stage. We should follow up the cases after the acute stage is over instead of allowing them to be neglected as some of the parents are prone to do. The patients should be examined frequently. If the joints of the limbs tend to contract it is best to put them in plaster dressings which are well padded, preferably with felt. In the case of oncoming scoliosis, fit the patient with a plaster bed. Do not include the chest as that would restrict respiration. Later when the patient is up, use splints to keep the limbs and trunk in good alignment. Plaster dressings are heavy and should be avoided when possible. Bed patients should have breathing exercises. If deformities develop they can be corrected in the earlier stage by giving an anaesthetic, manipulating the joint into good position and applying a plaster dressing. In the later stages tendon lengthening, tendon transplanting and osteotomies will be required.

**Management during the Convalescent stage** (i.e., the position of the patients of the 1936 epidemic at the present time).

Now that we have come to the convalescent stage we must carry out more active measures than previously. This is the time to begin muscle re-education by means of active exercise and massage. The patient should be encouraged to do everything that he can for himself and not to regard himself as a cripple. If all the cases which occurred in this Province last year were thoroughly examined at the present moment, it would be found that already some of them have developed deformities which require immediate correction. If these are not corrected while the muscles can be stretched, under an anaesthetic, cutting operations will be required. This we want to avoid. Cases which some months ago we thought had made a perfect recovery, will now be found to have atrophy of certain muscles or groups of muscles; their endurance below par, ankles weak, feet pronated, knees hyper-extended or flexed, possibly a tendency to knock-knee and perhaps, most serious of all, to be developing a lateral curvature. What should be done immediately? Examine the patients in your

district. Do not accept the patient's statement that the child is all right. They do not know. Bring the patients into your office, strip them naked and examine them thoroughly. They may require to have their shoes modified in order to correct pronation of the feet, or to be fitted with a splint to support the ankle, knee or spine, or to abduct the arm at the shoulder joint. The Tendo Achilles or some other muscle may be contracting and so producing a deformity which should be corrected at once. It may be that some of these patients require exercise, active or passive, to develop and strengthen certain groups of muscles.

### Exercise.

Active exercise for muscles which have the power of active contraction is the procedure of choice. One has often observed a great increase in the size and strength of the muscles in a lower limb following stabilization of an ankle or foot which hitherto had been flail, and, therefore, unable to bear weight. With exercise the bones increase in size, strength and density. Exercises should be planned so as to develop the weak muscles and the plan must be changed from time to time as groups of muscles recover. Muscles which are too weak to support a joint must be exercised passively. This helps to preserve the muscular tone and increase circulation.

It should be noted that muscles do not work to advantage when they are cold. Therefore, before exercises, active or passive, are begun, the body and limbs should be at normal temperature. The temperature and circulation in a paralyzed limb are below par and in cold weather the limb requires extra clothing. I have not had any personal experience with operative procedure to increase the temperature or growth of a limb but understand that in certain cases this procedure is beneficial.

### The Condition of the Bones in Infantile Paralysis.

An X-ray of the shaft of a bone shows that it is smaller than normal; that the cortex is thin and rarified. Clinical examination shows that the bone does not grow normally in length or diameter; that shortening of two to four inches in a long bone is quite common and four to six inches in a limb is not at all rare. If cut down on or cut into, one sees that the periosteum is thin and easily detached from the bone; that the cortex is thin, soft and somewhat bloodless in appearance and that the medullary cavity is filled with dark, dead-looking marrow. The long bones are weak and easily fractured and care must be taken in order to avoid accident. However, following a fracture or osteotomy, the bone unites quite readily.

If after a thorough course of physical therapy it is found that muscular recovery has ceased resort must be had to more radical measures such as tendon lengthening, tendon transplanting, osteotomies and stabilization of joints. Thith

brings us to the third stage which is that of permanent partial disability. One cannot attempt to describe operative treatment in detail. In this stage operative treatment goes hand in hand with corrective exercises and muscle re-education. When the patient reaches the adolescent age, tendons may be transplanted so as to distribute to better advantage, the muscle power which remains. Flail joints may be arthrodesed as in the case of a knee or stabilized by doing an astragalectomy as in the case of an ankle. In a case where lateral curvature is increasing, a portion of the spine may be made more stable by doing a fusion operation. In general, one makes use of bone operations to correct deformities, to support joints where the muscles do not function properly, and to equalize the length of the lower limbs. This enables the patient, to some extent at least, to do without splints and apparatus which are heavy and cumbersome. To do this work a certain amount of hospitalization is required. Patients who have to wear plaster dressings for several weeks or months should be discharged to their homes as soon as they feel well following operation, and so save an enormous amount of public money. Moreover, from the point of view of the patient's morale, it is good practise to keep them out of hospital as much as possible.

It is a difficult problem to follow up and treat many of those paralytic patients. This, because some of them are in poor financial circumstances, are indolent and thriftless, are too lazy to take advantage of help when it is offered to them and are willing to lay down in the lap of social service organizations, municipal and government relief. I once thought that if hospital and medical care, splints and appliances could be provided to indigent patients free of charge, all would be well with them. This idea is wrong. Few patients take proper care of apparatus supplied free. They are apt to lose their independence and capitalize their disability in order to live without work. This they do, little thinking that every dollar they get without giving value in return, they get at the expense of their own moral fibre.

It is not reasonable that people who are being supported by public funds should refuse operative treatment which would make them physically fit so that they can support themselves. Nevertheless we have such people with us. They ought not to be allowed so to do. I submit that there might be appointed a representative unsalaried impartial independent commission, which, on the advice of competent medical authority, could obtain a court order compelling certain selected cases, who are in receipt of public funds, on account of their physical disability, to undergo such medical and surgical treatment as would render them fit for work.

When kind parents and organizations have redone all they can for these cripples; when medicine, physical therapy and surgery have finished their task, when academic studies are complete,

and when adult age is reached, there still remains the equally important problem of building these unfortunate people into the structure of society. The problem is especially difficult here; because of the cold weather making it hard for them to get around, due to the fact that their limbs are easily frozen and they have to wear heavy clothing; because farming is carried on on a large scale and they do not fit into this plan the same as they would into a plan of mixed farming, and because of the lack of light industrial and commercial employment. These are some of the conditions which make it hard for cripples to obtain work.

It must be that long years of crippleddom reduce one's energy, and ambition, and makes one feel like giving up the fight. Small wonder that some of them do. It is unavoidable, but at the same time unfortunate, that there is no organized method of weaving these people into the structure of human affairs, after their medical treatment is completed.

#### REFERENCES

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The more you practice what you know, the more shall you know what to practice.—*W. Jenkin.*

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## Special Articles and Association Notes

### The Manitoba Medical Association Review

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*Editor*

C. W. MACCHARLES, M.D. (MAN.)

*Advisory Editor*

ROSS B. MITCHELL, B.A., M.D., C.M. (MAN.),  
F.R.C.P.(C.)

*Business Manager*

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### Health of Winnipeg

The report of the Health Department of the City of Winnipeg for the year ending 31st December, 1936, has been published. The general impression left on reading this report is that the health of the City of Winnipeg is remarkably well looked after. The population of the city is given as 224,533, an increase of more than 1,500 over the previous year, and an average of 15.1 persons per acre of land. Total corrected deaths were 1,746, an increase over the previous year, and the births were 2,714, a slight decrease.

The total number of reports of communicable diseases was increased over the previous year, due chiefly to epidemics of measles and scarlet fever. 123 cases of diphtheria were reported with 6 deaths. While this is a very considerable decrease over previous years, the number of cases is far too many and indicates that not sufficient advantage is being taken of the value of prevention by means of toxoid. 107 cases of poliomyelitis with 6 deaths were reported, of which 67 with 3 deaths occurred among residents of Winnipeg. Only 1 case of typhoid fever was reported with no deaths, but 5 cases of undulant fever were reported. Whooping cough with 163 cases reported was responsible for 3 deaths. These deaths were all children under 1 year of age. Dr. Douglas reports that frequently parents are

found to be careless in not taking the necessary steps to protect babies of such tender age.

The Chief Inspector of the Division of Sanitation and Housing calls attention to inadequate housing. Last year he stated "During the past five years only one house or suite has been provided for every ten marriages." The situation this year is even more acute as there were 2,717 marriages and actually 78 less dwellings. The shortage of housing accommodation occurs particularly among low wage earners. The illegal conversion of dwellings to tenements is still on the increase. Eventually this method of housing will result in increasing hospitalization costs.

The Chief Dairy Inspector reports that Winnipeg citizens consume daily 18,000 gallons of milk, of which 78% are pasteurized and 22% raw but tuberculin tested.

The Manager of the Bureau of Child Hygiene states that the corrected combined infant death rate and stillbirth rate for 1936 was 66.3 per thousand total births which is a record low for this rate in the city and one which compares very favorably with the lowest rates on the continent. In 1935 the rate was 74 per thousand total births. Of 2,714 live births to Winnipeg mothers, 91.6 occurred in hospitals or maternity homes, only twelve cases being attended by midwives. There were 15 puerperal deaths, a rate of 5.5 per thousand live births. The infant mortality, exclusive of stillbirths, in 1936 showed 117 infant deaths, giving a rate of 43.0 per thousand births. In 1912 with 4,870 live births there were 1,006 infant deaths, giving a rate of 206.6.

Altogether the report is a remarkably interesting document and bears testimony to the value of community effort organized under a capable administrator such as Dr. Douglas. —R. B. M.

### Report of Some Activities of the Council of The College of Physicians and Surgeons of Manitoba given before the Manitoba Medical Association Annual Meeting

May 20, 1937

The Council of The College of Physicians and Surgeons of Manitoba appreciates the privilege of reporting some of its activities.

1930.—Meeting August 25th, 1930, of representatives from all Colleges of Physicians and Surgeons in Canada and Newfoundland; the Medical Council of Canada; the Deans of all Canadian Medical Schools; the British Medical Association and Medical Associations of Canada; the Minister of Health. Representatives from the General Medical Council of Great Britain were invited, but refused to attend.

The following agenda received consideration:

1. The dealing with Irregular Practitioners.
2. Reciprocity with Great Britain and the British Empire.
3. The fee for Medical Council of Canada enabling Certificates and Multiplicity of Examinations.
4. Medical Care of Drug Addicts.
5. Health Insurance and Compensation.
6. Specialists:—The Qualifications and Recognition.
7. Re: Erasure of Names from Registers.

This was the first meeting of such a character held in Canada.

Many of the subjects received their first discussion that evening.

The following items are contributions to the medical profession of this Province by your Council, which are not paralleled by any such body in the world, viz.:—

1. The Gordon Bell Memorial for the stimulation of research once cultivated in an individual should never cease progression.
2. Life Membership for all their members of The College of Physicians and Surgeons who served the British Commonwealth anywhere overseas in the Great War. At present the number is 130.
3. Life Membership for members of The College of Physicians and Surgeons who have attained the age of 65 years and have been in practice for 30 years. The present number is 33.
4. Assistance to establish the Freidman Aschein Laboratory Test.
5. Education of the rural laity by supplying speakers to the meetings of the United Farmers of Manitoba.

In addition to the above your Council has contributed the following, which very few Councils of other Provinces have, viz.:—

1. Giving to the University of Manitoba, through the Faculty of Medicine, its Library to assist in raising the school of medicine to Class A standing.
2. Annual money grants to the above Library to improve its efficiency.  
(I am informed that the Medical Faculty are contemplating erecting a tablet to The College of Physicians and Surgeons for these gifts).
3. Assistance to the Manitoba Medical Association to enable Extra-Mural education of the medical practitioners.
4. Financial assistance to the Faculty of Medicine for the recent jubilee.
5. The establishment of a Taxing Committee to pass judgment on disputed medical fees.

6. The harmonious co-operation with the University of Manitoba and the Medical Faculty.

Cash contributions towards assistance of the profession:

1. Gordon Bell Memorial, \$20,000.00— Annual Interest at present .....	\$ 950.00
2. Medical Library—1932 to 1937 .....	3,750.00
3. Medical College Anniversary Fund 1934—Guaranteed \$1,000.00—Paid ..	713.02
4. Medical Research Committee re: Freidman Test .....	150.00
5. Manitoba Medical Association, re: Extra Mural work—	
1935 .....	114.35
1936 .....	184.70
Manitoba Medical Association re: Review space—	
1934 .....	60.00
1935 .....	150.00
1936 .....	210.00
6. Winnipeg Medical Society re: Unemployment Relief organization expenses—	
1933 .....	228.66
1934 .....	724.35
7. Expenses re: United Farmers Chatauqua meetings .....	62.57
8. Expenses re: opposition to passage of Chiropractic Bill—	
1936 .....	514.56
9. Expenses re: prosecution of irregular practitioners—	
1932 .....	17.00
1933 .....	22.00
1934 .....	232.75
1935 .....	451.05
1936 .....	Nil

#### Receipts re: Fines.

1932 .....	Nil
1933 .....	Nil
1934 .....	117.70
1935 .....	Nil
1936 .....	50.00

#### Re. Opposition to the Passage of the Chiropractic Bill. 1936.

You are all familiar with the result in the Province of Manitoba, but I doubt very much if the profession appreciates the enormous amount of work this entailed on the Committee of Twelve, under the able chairmanship of Dr. Fahrni.

Praise of the accomplishment was received from every province in Canada, the British Medical Association, the General Medical Council of Great Britain, and the American Medical Association.

The success obtained in Manitoba has borne fruit. This year the far-away Province of New Brunswick was placed in the same position



as we were in 1936. A call came from the College of Physicians and Surgeons of that Province for what assistance we could offer. Our complete file was submitted and there is no doubt had influence in preventing the bill being passed by the Legislature of that Province.

To date, Manitoba is one of the few Provinces of Canada in which The College of Physicians and Surgeons gives no official recognition to any form of unorthodox practice of medicine. True, the Chiropodists have recognition under a separate act, granted by our Legislature in 1932.

### **The Medical Library.**

May this opportunity be taken to inform each registered physician that the Faculty of Medicine of the University of Manitoba will loan any volume or magazine in its possession for the asking and payment of the postage one way only.

This privilege is safeguarded through the contribution given by The College of Physicians and Surgeons. We are extremely anxious that much greater use should be made of this very valuable asset.

### **Committees.**

#### **(a) Education Committee.**

The Educational Committee has been busily engaged with some of the questions brought before the representative meeting on August 25th, 1930, mentioned above.

1. The uniformity of medical examinations.
2. Consideration of the qualifications of a specialist.
3. In conjunction with the Medical Faculty endeavoring ways and means for the reduction of the multiplicity of examinations.

#### **Representative to Admissions Committee.**

A committee of one is selected from the Council to act with a University Committee on the question of selection of medical students.

#### **(b) Taxing Committee.**

The Taxing Committee in 1934 deliberated on three cases, and in 1936 on two, all of which were satisfactorily settled.

#### **(c) Executive Committee.**

During the years 1932 to 1936 inclusive, there have been 23 meetings of the Executive Committee.

The following is a summary of one branch of the activities of this Committee, i.e., consideration and disposal of complaints against registered doctors.

In the year 1932 there were 5 meetings, at which there were 9 complaints against doctors considered, and 4 of these were referred to the Discipline Committee for investigation and action. Three were erased and none re-instated to date.

In the year 1933 there were 4 meetings, at which there were no complaints considered.

In the year 1934 there were 7 meetings, at which there were 7 complaints against doctors considered, and 1 of these was referred to the Taxing Committee for investigation and report.

In the year 1935 there were 4 meetings, at which there were 14 complaints against doctors considered. Of these 1 case was referred to the Taxing Committee; 4 were referred to the Discipline Committee, and 1 was referred to the Council for action. Three were erased, but subsequently all restored.

In the year 1936 there were 3 meetings, at which there were 9 complaints against doctors considered. Of these 3 were referred to the Discipline Committee, and 1 to the Taxing Committee.

The Council would draw your attention to the consideration of complaints relating to incorrect charges to the Relief Department, all of which were satisfactorily settled by either the Executive or Discipline Committee—none of which were carried to the Civil Courts as you will note occurred recently in Toronto (Free Press, May 17th, 1936), where a doctor was found guilty and sentenced to a month in jail.

#### **(d) Discipline Committee.**

The Discipline Committee has a most undesirable duty to perform, sitting in judgment on its confreres. Your members have always performed their duties faithfully.

1932.....	4 cases
1933.....	4 cases
1934.....	1 case
1935.....	4 cases
1936.....	3 cases

So far as is known at present The College of Physicians and Surgeons of Manitoba is the only province which has established a joint committee with the Pharmaceutical Association for the purpose of trying to prevent the Federal Government issuing patents on pharmaceuticals and apparatuses which are swindles and certainly in many instances very injurious to the public.

Interviews are had with various officials, viz. :—

1. Narcotic division of the Federal Control Department.
2. Provincial Liquor Control Department.
3. Dominion Police.
4. City Police.
5. The Workmen's Compensation Board.
6. The Manitoba Telephone System.
7. The Registrar of the University of Manitoba.
8. The Recorder of Vital Statistics.

The Council would appreciate any criticism, constructive or otherwise, and will be anxious to give careful consideration to any suggestions that may be for the benefit of the members of The College of Physicians and Surgeons.

## The London Hospitals

By

F. GERARD ALLISON, M.D. (Man.)

M.R.C.P. (Lond.)

### UNDERGRADUATE TEACHING

The average Canadian thinks of London medicine in terms of Harley Street, but to the Post-Graduate student it presents rather the aspect of a seething hierarchy, full of strange customs and modern innovations. Let us start with a medical student who has completed his pre-medical work at a university and has enrolled at one of the great teaching hospitals like Bart's, St. Thomas, Guy's, or the London. With bright tweed coat, grey flannel trousers, and a pipe, he saunters to his lectures without the hunted, strained look so common in this country, probably because he knows that his career as a medical student can continue for life as long as he pays his fees.

In the clinical years the student writes histories under the supervision of the house physician or surgeon, who is himself under the Registrar. The Honorary Physician or Surgeon makes rounds once or twice a week with his Registrar, house man, and students. After qualifying, some students go right into practice, but most of them take a resident appointment in some hospital. Only a few are privileged to become residents in their own Teaching Hospital. Of these, about one man a year will eventually get a three or five year appointment as one of the half-dozen Registrars in the hospital, after he has had some outside experience and has obtained his F.R.C.S. or M.R.C.P. The Registrar receives from eight hundred dollars to fifteen hundred dollars a year and lives out. He is engaged in teaching and research, and may have a private patient sent to him every few months by his Chief. About one Registrar in four finally gets an appointment as an Honorary Physician or Surgeon in his own hospital.

### TEACHING HOSPITAL

The London Hospital will serve as an example of one of the more recent teaching hospitals. Founded about a hundred and fifty years ago, it presents a long, dirty, grey facade to the White-chapel Road in East London, not far from Limehouse. Other sides of the central courtyard are formed by the Medical College, the Nurses' Home and the Pathology Institute. Across the street from the Medical College is the great Out Patients' Department Building and the V. D. Clinic Building. The front door of the hospital is flanked by boxes for voluntary contributions of money and silver paper, and by placards giving information about the cost of food eaten by the patients. The chauffeured Rolls-Royces of the Honorary Staff are met here by sedulous porters, who lead each great one in to the central hall and turn on his lighted name board. The white coated houseman and Registrar, and a group of students await him here, and accompany him to the wards.

The In-Patients' Department comprises about one thousand beds, but the magnitude of the hospital's work is best seen in the out-patients' waiting room, which is bigger than the auditorium of a good-sized church. Serried ranks of chairs are filled by a chatting crowd of cockneys. If the waiting becomes too exhausting tea may be purchased. Patients for examination wait their turn in inner rooms, half undressed, with a small red blanket over their shoulders. Here the students question and examine them until the doctor arrives.

### GENERAL AND SPECIAL HOSPITALS

Aside from the teaching hospitals there are many general and special hospitals supported by voluntary subscription and staffed by honorary physicians and surgeons, many of whom also hold honorary appointments at their own teaching hospitals. The residents of these hospitals are usually English or Dominion graduates who are working for one of the higher degrees or learning a specialty. They are paid about five hundred dollars a year and their keep, and are granted much responsibility and operative experience. The number of beds controlled by each resident varies from forty to sixty. Besides this there are usually out-patient and casualty duties.

The special hospitals are a particularly interesting feature. There are three Chest hospitals, one Heart hospital, three Nervous Disease hospitals, two Rectal hospitals, two Kidney and Bladder hospitals (notably "St. Peter's for the Stone"), a number of Obstetrical hospitals, Children's hospitals, and Gynaecological hospitals, an Orthopedic hospitals, three Eye hospitals, a number of Nose and Throat hospitals, the Cancer hospital, the Tropical Disease hospital, and two Skin hospitals. The advantage of working in these institutions is that the staff gains a very wide experience on a concentrated subject, as these hospitals draw difficult cases from half the population of England.

### LONDON COUNTY COUNCIL HOSPITALS

Another great group of hospitals is run by the London County Council on money from the rates. Including general hospitals, fever hospitals, tuberculosis hospitals and asylums, the L.C.C. controls about eighty thousand beds. There is a 500 to 1,000 bed L.C.C. general hospital in practically every borough of London. These are now well equipped for scientific medicine. About 70 to 140 beds are under the control of each resident who has the privilege of calling in selected consultants for individual cases if he so wishes. The volume and variety of the work in these hospitals is tremendous. Not only is each resident responsible for his own histories, treatments and post-mortems, but every other day he does admitting and emergency treatments, and performs or assists at emergency operations. The salaries of permanent residents doing clinical work vary from \$1,750.00 per year and keep, to \$3,000.00 and keep. A locum tenens receives \$120.00 per month and keep.



## POST-GRADUATE INSTRUCTION

Some of the Teaching Hospitals give semi-annual courses leading to the higher medical and surgical degrees. These are usually limited to twenty students who pay about \$100.00 tuition fees. Frequently there is a long waiting list. The course comprises lectures, pathological demonstrations, in-patient clinics on specially selected cases, and out-patient clinics on rare cases who have been specially asked to attend. The applications for admission to teaching hospitals are so numerous that the beds are reserved as far as possible for instructive cases, and dull ones are sent elsewhere. The figures for out-patient attendance are almost astronomical. An index is kept of diagnoses, so it is possible for an out-patient clinician to demonstrate all the complications, stages or varieties of many conditions by having postcards sent to the appropriate patients, asking them to report to the clinic. The post-graduate teaching is done by the honorary attending staff, assisted by the pathologist, biochemist and registrars. The clinicians are brilliant men, brought up in an atmosphere of good teaching, with an immense experience behind them. As indicated above, they usually have excellent cases upon which to expatiate. The result is both inspiring and instructive.

The British Post-Graduate Hospital at Hammett has been open now for two years, giving refresher courses to general practitioners, and the same type of higher degree course as offered by the teaching hospitals. The staff of the hospital frequently invites leading consultants from other hospitals to give lecture courses.

The special hospitals also give lecture courses and demonstrations at intervals. Post-graduate students who have not been fortunate enough or who have not time enough to take resident appointments pay for the opportunity to become clinical clerks to one of the honorary staff. For instance, at Queen Square Hospital for Nervous Diseases each physician is allowed four clinical clerks. They divide up the new admissions for the purpose of history-taking, and make rounds about twice a week with the Chief and the house physician while each case is minutely discussed. Between times the clerks attend out-patients clinics, make rounds with other physicians, watch brain operations, or work in the Pathological Laboratory.

Even without taking a strenuous resident appointment or clinical clerkship it is possible to have a fairly complete program by picking out individual clinics at various teaching or special hospitals. The medical museums at the teaching hospitals, the Royal College of Surgeons, and particularly the Wellcome Museum, are well worth studying. The Royal Society of Medicine holds one or two clinical "shows" of rare cases every week. These are discussed by leading clinicians and papers are read at intervals in this society, the London Medical Society, the Royal College of Surgeons, and the Royal College of Physicians.

Although taking special courses is a useful preparation for writing on one of the higher examinations, this is by no means obligatory. Many candidates rely on their reading, on their clinical experience, and possibly on private tutoring. The examinations are held every three or six months, and consist of written papers, clinical and pathological tests, and a final oral quizz. They are highly competitive; about 70% to 80% of candidates fail to satisfy the examiners and have to try again or abandon the attempt. Some unfortunates keep up the struggle for many years. It is impossible to be elected to the honorary staff of a British hospital of repute without one of these degrees.

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## Department of Health and Public Welfare

### NEWS ITEMS

#### HEALTH ASPECTS OF FOOD DISTRIBUTION

Until very recent years it was believed that the organisms most often responsible for outbreaks of acute gastro-intestinal disturbance were of the Paratyphoid or Salmonella group, but much attention has since been given to certain strains of Staphylococci, which produce an enterotoxigenic substance. Investigation of foods contaminated with this type of organism indicate that it may be responsible for many cases of "food poisoning," and since the list of foods involved includes many of most importance, an effort should be made towards the control of this and other types of "food poisoning."

One outbreak in Manitoba is recorded briefly as follows:—

On June 25th, 1934, twenty-seven persons attended a picnic. Within from four to seven and one-half hours later, twenty-four of these individuals became violently ill with intense nausea, vomiting and diarrhea, accompanied by elevation of temperature and prostration. In many of the cases, muscular weakness persisted for two or three days after the disappearance of the acute symptoms.

Investigation incriminated a chicken and ham salad, which had been prepared about forty-eight hours before consumption and was placed on the table about one and one-half hours before being eaten. During the forty-eight hours prior to its consumption the salad was kept in a refrigerator, but there was evidence that the supply of ice was inadequate. There was no opportunity of obtaining a sample of the foods under suspicion, so that the exact cause of this outbreak was never determined.

Great care in the preparation and storing of food, both commercially and in the home, is essential if these gastro-intestinal disturbances are to be avoided in the warm weather.

The following extract from the American Public Health Association Year Book 1936-1937, outlines various hazards which may be associated with Food Distribution:—

It is unnecessary to remind the members of this section of the rapid progress which has been made in the past two decades from the standpoint of protecting foods and food consumers from various health hazards. Even the layman has become increasingly cognizant of the efforts being made to produce and fabricate food and food products of higher purity, nutritional value and dietary efficiency.

Such progress as has been made is due to the combined constructive efforts of many groups of persons concerned with widely different phases of foods. Included in these groups are the growers or producers, agricultural agencies, packers, shippers, manufacturers, distributors, governmental health and control authorities, and, to some extent, the consumers.

Despite the progress which is apparent in many directions, the success of the efforts of all those concerned with higher health standards and safety for the consumer of foods depends to a considerable extent on the intelligence and co-operation of the final agency which displays and eventually disposes of these foods, and places them in the hands of the consuming family. Thus the retail dealer or purveyor of foods forms one of the most important links in the chain. The exact function of this agency is dependent in part on the nature of the foods handled, and varies widely. It may be a grocery store, butcher shop, meat market, fish market, fruit store, confec-

tionery shop, ice cream parlor, delicatessen, restaurant, bakery, wayside stand, or any ramification or combination of the above. It may even be one of the more recent so-called eating establishments, primarily concerned with the dispensing of alcoholic beverages.

Regardless of the particular types of food which may be offered for sale, and the form in which they may be available to the customer, there are numerous factors which deserve serious consideration from a health standpoint.

It is essential that the food be of wholesome, edible quality when received in such an establishment. Equally important—if not more so—is it that no practices in these retail agencies impair quality or imperil health. The equipment as well as the personnel of food vending establishments bears a definite relation to the quality and safety of their products. The practices of the personnel may involve health hazards which counteract all the previous care of others who have made every effort to insure the delivery of sound healthful foods of high dietary value at the doors of such an establishment.

This first requirement from a health standpoint, that all the foods which enter the retail distributor's establishment, be of good quality when received, is doubtless more frequently met today than ever before because of the tremendous number of foods which are packaged or protected by wrapping materials. Metal, glass and the numerous types of fiber, paper, parchment and transparent cellulose containers have contributed greatly to the safeguarding of foods in transport, storage and on display. Foods prepared in tin or glass are particularly well protected and such materials fortunately form a considerable part of the volume of retail foods today.

Unprotected raw food materials may be the source of health hazards, and the methods of handling certain cooked products at times give rise to opportunities for contaminations which are prejudicial to health. Observations in numerous food selling establishments indicate the need for more careful attention in the retail handling of meats, fish, poultry, and other perishable products.

We may mention among objectionable practices, the indiscriminate use of scale pans and weighing machine platforms. Such equipment is often used for weighing foods of many different kinds without cleaning, and sometimes the foods are not separated from the platforms by even a sheet of paper. Knives and automatic slicers are utilized for cutting diverse foods, which may vary widely in sanitary quality, with little thought of the possible consequences. Scoops and ladles for handling various products, including such materials as shellfish, are used promiscuously without sufficient and timely cleaning.

In meat shops, prepared meats are frequently sliced on the same block on which poultry entrails were removed just a short time previously. The same knife may be used in both instances with no cleaning except that afforded by a butcher's apron. Another objectionable practice which is apparently not recognized by many food dealers is the use of metal pins for price tags which are used week after week, inserted in various cooked and uncooked foods with no cleaning. Trays for perishable products in display cases are sometimes filled and refilled throughout the day without even a cursory cleaning.

In the shops handling cooked foods, such as meat pies, stuffed poultry, pastries, and the closely related delicatessen products, one may observe the exposure of these articles under improper conditions to temperature, i.e., without refrigeration. The protection of the ultimate consumer requires constant use of low temperatures for such food materials, both while



on display and in storage, when the store is not open. The bacteria which cause spoilage, also those which may cause food poisoning, are retarded in their growth only by constant and definite low temperatures.

The increased use of frozen food products indicates the need for emphasis to food handlers of the fact that such food should be displayed only in refrigerated cabinets, kept at below freezing temperatures. Frozen foods, such as strawberries, packed in paper cups or other containers are sometimes displayed on open counters and returned to refrigerators at night after melting all day. Such practices with frozen foods are sure to bring about distinct deterioration, as well as cause economic losses, and may present actual health hazards.

Very recent research in the vitamin content of various foods has given definite evidence that the vitamin C content of certain green vegetables, depreciates rapidly when such foods are kept at room temperature. In the case of spinach, which is widely used for its vitamin content, practically all the vitamin C value may be lost in seven days at room temperature. If kept at refrigeration temperature the losses of vitamin C has been shown to be very slight. This information should be of great importance to the consumers of foods as well as to the distributors. As green vegetables are not refrigerated to any great extent at present, there are indications that refrigeration should be much more widely used to conserve the dietary values of such materials.

The washing equipment present in any retail food shop, determines to a considerable extent the success of all its cleaning operations. The interest exhibited in the problems of utensil cleaning and dishwashing during the past few years is commendable, and progress in this direction can be readily applied in food stores, as well as ice cream fountains and restaurants. There are many food handling stores, however, which have only cold water supplies for such cleaning as is usually carried out.

The possible presence of spray residues on fruit presents hazards in those retail establishments which buy fruit directly from local growers, although fruit in the larger cities and that in interstate commerce, is more carefully controlled to prevent danger from such sources.

The control of rodents and insects in all food establishments is essential for the protection of the consumer. The constant diligence necessary to accomplish this objective is sometimes lacking in retail stores, despite its importance.

The handling of foods by disease carriers or the employment of such persons in food vending establishments is definitely prohibited by law. The detection and elimination of all such carriers in food handling occupations is recognized as a most difficult problem, and the methods involved are the primary concern of another section of the Association. It is well known that the spread of disease by such persons, however, may be limited to a considerable extent by habits of strict personal cleanliness.

The highest degree of sanitary practice and personal cleanliness should be expected of all food handlers, and any lower standards should not be tolerated. To accomplish this objective there is a definite and distinct need for adequate toilets and proper hand washing facilities. Proper handwashing facilities include plenty of hot water, detergents, and sanitary wiping towels or driers.

This citation of some health aspects of retail food handling is presented with a definite view in mind—namely, to focus the attention of health minded people on the conditions which may at times exist in some of the establishments in their home area.

Some of these conditions may exist even where one's own foods are purchased. It is recognized that

many such hazards are due to ignorance rather than carelessness on the part of those concerned. Food inspection officials are generally unable to visit any one food-selling establishment more than a few times a year, and can correct only those undesirable practices they observe at the time of inspections.

Health education has proved highly successful in the schools by inculcating in the minds of children, the information and the habits which are essential for the proper conduct of their personal health. Has the health minded consumer not an equal opportunity to be of assistance to health authorities in making every effort to raise the sanitary plane of his own food purchasing agencies? In some respects the retail distributor of foods may be considered the weakest link in the chain from the standpoint of health conservation as it applies to foods. A progressive campaign to educate retail food distributors in the best methods of caring for their products and simultaneously protecting the health of their customers would yield high dividends in the years to come.

It is hoped that some definite steps may be taken in this direction in the near future. —C. R. D.

## COMMUNICABLE DISEASES REPORTED

### Urban and Rural - July, 1937.

**Whooping Cough:** Total 236—Winnipeg 111, St. Boniface 61, Unorganized 14, Norfolk North 13, St. Clements 2, St. Vital 2, Hartney 1, Kildonan East 1, St. Francois Xavier 1 (Late Reported: May, St. Andrews 1; June, St. Boniface 14, Unorganized 14, St. Vital 1).

**Measles:** Total 189—Winnipeg 48, Whitewater 15, Brenda 10, Kildonan East 10, St. James 5, Unorganized 5, Arthur 4, Cameron 4, Eriksdale 4, Boissevain 3, St. Boniface 3, Harrison 2, Morton 2, Springfield 2, Strathclair 2, Brandon 1, Edward 1, Elton 1, Hanover 1, Napinka 1, Oakland 1, Rockwood 1, Souris 1, Turtle Mountain 1, Virden 1, Whitehead 1 (Late Reported: April, McCreary 1; May, Gray 1; June, Unorganized 40, Rockwood 12, St. James 4, Whitehead 1).

**Tuberculosis:** Total 39—Winnipeg 9, Unorganized 4, Cartier 2, Kildonan East 2, Portage Rural 2, Stanley 2, Brandon 1, Brenda 1, Brokenhead 1, Cypress North 1, Dauphin Rural 1, Flin Flon 1, Fort Garry 1, Gimli Town 1, Lorne 1, Mossey River 1, Norfolk North 1, Portage City 1, St. Andrews 1, St. Boniface 1, St. Clements 1, Ste. Rose du Lac 1, The Pas 1, Transcona 1.

**Scarlet Fever:** Total 31—Winnipeg 18, Unorganized 5, Edward 2, Fort Garry 2, Kildonan East 1, Morris Rural 1, St. Vital 1, Virden 1.

**Chickenpox:** Total 21—Winnipeg 11, Flin Flon 4, Brandon 2, Manitou Village 1, Wawanesa 1 (Late Reported: June, Brandon 1, Portage Rural 1).

**Influenza:** Total 7—(Late Reported: February, Portage Rural 1; March, Brokenhead 1, Portage Rural 1; April, Ochre River 1, Unorganized 1; May, Blanchard 1, Selkirk 1).

**Anterior Poliomyelitis:** Total 5—Transcona 2, Eriksdale 1, Minto 1 (Late Reported: June, Rosedale 1).

**Diphtheria:** Total 5—Winnipeg 2, Assiniboia 1, Dufferin 1, St. Vital 1.

**Mumps:** Total 5—Ethelbert 1, Hanover 1, Minnedosa 1, Portage City 1, Winnipeg 1.

**Undulant Fever:** Total 3—Woodworth 1 (Late Reported: May, Portage City 2).

**Diphtheria Carriers:** Total 3—Winnipeg 3.

**Erysipelis:** Total 2—Winnipeg 2.

**Ophthalmia Neonatorum:** Total 2—St. Boniface 2.

**Typhoid Fever:** Total 2—Portage Rural 1, Winnipeg 1.

**Trachoma:** Total 1—Montcalm 1.

**German Measles:** Total 1—Brandon 1.

**Venereal Disease Report:** Gonorrhoea 87, Syphilis 41.

**DEATHS FROM ALL CAUSES IN MANITOBA****For the Month of June, 1937.**

URBAN—Cancer 42, Pneumonia (all forms) 14, Tuberculosis 13, Puerperal Septicaemia 1, Erysipelas 1, Whooping Cough 1, all other causes 135, Stillbirths 22. Total 229.

RURAL—Cancer 23, Tuberculosis 19, Pneumonia (all forms) 17, Influenza 4, Diphtheria 2, Whooping Cough 2, Measles 1, Syphilis 1, all others under 1 year 5, all other causes 178, Stillbirths 31. Total 283.

INDIAN—Tuberculosis 13, Influenza 5, Pneumonia (all forms) 5, Whooping Cough 5, all others under 1 year 4, all other causes 7, Stillbirths 1. Total 40.

## Medical Library University of Manitoba

**Current Medical Literature****The Practitioner—June, 1937.**

The Care and Treatment of Inflammations of the Nervous System in the Pre-School Child. By C. Worster-Drought, M.A., M.D., F.R.C.P., Physician, the Metropolitan Hospital, and the West End Hospital for Diseases of the Nervous System.

The Diagnosis and Treatment of Congenital Deformities in Young Children. By B. Whitchurch Howell, F.R.C.S., Senior Surgeon, Queen's Hospital for Children, London; Orthopedic Surgeon, Essex County Council; Late Orthopedic Surgeon, Ministry of Pensions, London.

Disorders of the Skin in the Pre-School Child. By R. T. Brain, M.D., F.R.C.P., Physician in Charge of the Skin Department, Royal Free Hospital, and the Hospital for Sick Children, Great Ormond Street.

Diet of the Pre-School Child. By Catherine Chisholm, C.B.E., M.D., Clinical Lecturer on Children's Diseases, Manchester University; Physician for Children, Manchester Northern Hospital; Physician, Duchess of York Hospital for Babies, Manchester.

Plaster of Paris Technique in the Treatment of Surgical Tuberculosis and other Conditions. By Sir Henry Gauvin, M.D., M.Chir., F.R.C.S., Medical Superintendent, Morland Clinics, Alton, and the Lord Mayor Treloar Cripples' Hospital and College, Alton.

Chronic and Irregular Gout. By W. S. C. Copeman, M.D., F.R.C.P., Assistant Physician, Children's Department, West London Hospital; Physician, Hospital of St. John and St. Elizabeth; Physician, British Red Cross Clinic for Rheumatism.

Radio-Active Vaseline: a New Technique for Surface Radium Therapy. By Albert Eidinow, M.B., B.S., M.R.C.S., L.R.C.P., Honorary Physician, the St. John Clinic and Institute of Physical Medicine, Pimlico, and the Light Department of the Radium Institute.

General Practice: XII.—Fees. By I. G. Briggs, M.R.C.S., Barrister-at-Law.

**British Medical Journal—March 6, 1937.**

Nasopharyngeal Sepsis in 2,056 Cases of Mental Disorder; The Importance of Closed Sepsis. By T. C. Graves, M.D., F.R.C.S., Chief Medical Officer, City of Birmingham Mental Hospitals.

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Zinc Protamine Insulin. A Clinical Trial of the New Preparation. By R. D. Lawrence, M.D., F.R.C.P., and Nora Archer, M.B., Oxon. (From the Diabetic Clinic, King's College Hospital).

The Nocifensor System of Nerves and its Reactions. By Sir Thomas Lewis, M.D., F.R.C.P., F.R.S., Physician to University College Hospital, London.

Active Immunization Against Tetanus. By Herbert H. Brown, O.B.E., M.D., F.R.C.S.

Death Following Blood Transfusion. Notes on Two Cases. By F. Pygott, M.B., D.P.H., Late Assistant Resident Medical Officer, Mill Road Infirmary, Liverpool.

Psychology in Industry. By May Smith, M.A., D.Sc., Investigator to the Industrial Health Research Board.

### British Medical Journal—March 13, 1937.

Protamine Insulin and Zinc Protamine Insulin in the Treatment of Diabetes Mellitus. By H. P. Hims-worth, M.D., M.R.C.P., Deputy Director of the Medical Unit and in Charge of its Diabetic Clinic, University College Hospital, London.

Non-Surgical Renal Emergencies. A Post-Graduate Lecture. By James M. Stalker, M.D., Physician, Dundee Royal Infirmary.

Treatment of Aspirin Poisoning by Intravenous Sodium Lactate Solution. By Stanley W. Williams, M.D., Medical Superintendent, Children's Hospital, Melbourne, and Rona M. Panting, M.B., B.S., Resident Medical Officer, Children's Hospital, Melbourne.

Continuous Intravenous Saline Infusion. By Hamilton Bailey, F.R.C.S., Surgeon, Royal Northern Hospital, Wilfred I. B. Stringer, M.D., M.C.P.S., Resident Medical Officer, Royal Northern Hospital, and Kenneth D. Keele, M.D., M.R.C.P., Casualty Physician, St. Bartholomew's Hospital; Late Medical Registrar, Royal Northern Hospital.

Climato-Physiological Investigations at the Seashore. By Otto Kestner, M.D.

### Post-Graduate Medical Journal—May, 1937.

Some Observations on Acute Appendicitis. By Cameron MacLeod, F.R.C.S. (Assistant Surgeon, Charing Cross Hospital; Honorary Surgeon, Connaught Hospital, Walthamstow).

The Treatment of Glycosuria. By T. H. Oliver, M.D., F.R.C.P. (Physician, Royal Infirmary, Manchester).

Thymus. By A. W. Spence, M.A., M.D. (Cantab.), M.R.C.P. (Lond.). (Assistant Physician and Assistant Director of the Medical Unit, St. Bartholomew's Hospital, London).

### Post-Graduate Medical Journal—June, 1937.

Some Practical Points in the Diagnosis and Treatment of Anaemia. By Geoffrey Bourne, M.D., F.R.C.P. (Physician with Charge of Out-Patients, and in Charge of the Cardiographic Department, St. Bartholomew's Hospital).

Physiotherapy in Diseases of the Skin. By Norman Burgess, M.A., M.D., M.R.C.P. (Physician in Charge, Skin and Light Departments, Bristol General Hospital. Clinical Lecturer in Diseases of the Skin, University of Bristol).

The Future of Speech Therapy. By H. St. John Rumsey, M.A. (Speech Therapist and Lecturer at Guy's Hospital).

A Note on Two Unusual Cases of Thrombopenic Purpura. By Kenneth Playfair, M.A., M.B., M.R.C.P. (Physician to Queen Mary's Hospital for the East End; Physician to the Royal Waterloo Hospital).



The Practitioner—May, 1937.

- The Treatment of a Case of Hypertensive Heart Disease. By W. T. Ritchie, O.B.E., M.D., P.R.C.P.E., Professor of Medicine and of Clinical Medicine, Edinburgh University; Physician, Royal Infirmary, Edinburgh.
- The Treatment of a Case of Angina Pectoris. By John Hay, M.D., F.R.C.P., D.L., Emeritus Professor of Medicine, Liverpool University; Consulting Physician, Liverpool Royal Infirmary; Visiting Physician, City Hospital, Walton.
- The Treatment of a Case of Thyrotoxic Heart Disease. By Thomas F. Cotton, M.D., C.M., F.R.C.P., Physician, National Hospital for Diseases of the Heart.
- The Treatment of a Case of Congenital Heart Disease. By Charles Harris, M.D., F.R.C.P., Physician, Children's Department, St. Bartholomew's Hospital, and the Infants' Hospital, Vincent Square.
- The Treatment of a Case of Syphilitic Heart Disease. By Geoffrey Bourne, M.D., F.R.C.P., Physician, with charge of Out-patients, and in charge of the Cardiographic Department, St. Bartholomew's Hospital.

On the Value of the Electrocardiogram in General Practice. By Adolphe Schott, M.D. (Heidelberg), M.R.C.S.; Clinical Assistant, Guy's Hospital.

The Use of Insulin in Non-Diabetic Malnutrition: With Special Reference to Pulmonary Tuberculosis. By Philip Ellman, M.D., M.R.C.P., Consultant Physician, Tuberculosis and Chest Clinic and Harts Sanatorium, County Borough of East Ham; Consultant Physician, St. Stephen's Hospital (Rheumatic Unit), London County Council.

The Treatment of Gonorrhoea and its Complications. By Harold Dodd, M.Ch., F.R.C.S., Surgeon, King George Hospital, Ilford, and Royal Hospital, Richmond.

Clinical Indications for the Use of the Specific Hormone of the Corpus Luteum. By C. Clauberg, M.D., Königsberg.

General Practice — XI. On Writing Medical Papers. By Sir Humphrey Rolleston, Br., G.C.V.O., K.C.B.

The Practitioner—July, 1937.

Old Age. By Sir Robert Armstrong-Jones, C.B.E., M.D., D.Sc., F.R.C.P., D.L.

The Management of Disorders of the Nervous System in Old Age. By Douglas McAlpine, M.D., F.R.C.P., Physician, Department for Nervous Diseases, and Lecturer in Neurology, Middlesex Hospital; Physician,

Hospital for Epilepsy and Paralysis, Maida Vale.

Respiratory Diseases in Old Age. By Geoffrey Marshall, O.B.E., M.D., F.R.C.P., Physician, Guy's Hospital; Assistant Physician, Brompton Hospital for Diseases of the Chest.

Rheumatism in Advancing Years. By Charles W. Buckley, M.D., F.R.C.P., Physician, Devonshire Royal Hospital, Buxton, and the Buxton Clinic for Rheumatic Diseases.

The Surgery of Old Age. By Geoffrey Keynes, M.D., F.R.C.S., Assistant Surgeon, St. Bartholomew's Hospital.

Diet in Old Age. By Hugh Dunlop, M.D., M.Sc., M.R.C.P., Assistant Physician, Charing Cross Hospital; Lecturer in Pharmacology, King's College, London.

Nursing and Care of the Bedridden Patient. By Miss E. C. Pearce. Sister-Tutor, The Middlesex Hospital.

Diet in Health and Disease: 1. Practical Dietetics. By V. H. Mottram, M.A., Professor of Physiology



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